

Claims

1. Fenestrated asymmetric intracardiac device for the completion of total cavopulmonary anastomosis through cardiac catheterization.

Is characterized for having a bifurcated tubular conduct, which is formed by a first inferior section and a second superior section, being both sections one after the other, according to a same warped axial axis in the space form by a conduit section. The first section is a tubular mesh, covered at least in some parts of it by an impermeable polymer with a curvature between 35° - 45° . This first section in its inferior end has a transversal section, substantially circular, with a diameter between 16 – 20 mm, while in the superior end of this first section, it has a transversal section progressively crushed and with a substantially oval shape, being the transversal sections along the quoted axes which substantially has the same area; the lateral of this first section presents at least a fenestration selectively closure, which communicates the interior of that conduit with the exterior of it. This first inferior section is continued by the second superior section, which has a tubular mesh covered with, at least in some parts, an impermeable polymeric material and transversal sections, along the warped axis, growing oval up to get a diameter smaller than the ellipse, between 10-13 mm. The transversal sections are substantially equal in area. After reaching this second section, the diameter section smaller than 10-13 mm, this section bifurcates in two branches, being one of these branches longer and the transversal sections substantially circular and equal in area. When this second section reaches the smallest area section (10-13mm), it bifurcates in two branches, being one of these branches longer and the transversal sections substantially circular with a diameter between 10-13 mm and prolonging the warped axis, while the other branch is projected into a short appendix of transversal section which is circular, with a diameter between 10-13 mm and obliquely divergent, forming with the longest longitude major branch a distorted "Y" whose branches are directed backwards. Each of these branches has a mesh of thread, which are partially covered by an impermeable polymeric material and they form a unique body with the second superior section, being the section longitude between 60-75 mm, while the longest branch of the second portion is between 18-25 mm long, and the longitude of the short bifurcated appendix is between 4-8 mm; defining the short appendix in its bifurcation with regard to the major longitude branch of the wall that faces between 50%-70% of blood which runs up through the area projected by the tubular conduct from its inferior end. The first section inferior end determines a connection with the inferior vena cava and the hepatic vena, being this tubular conduct, which is formed by the primary and secondary sections, lodged inside the right atrium, while the major longitude section of the bifurcation is lodged inside the left pulmonary artery, setting a close relation with the inner walls and an obstruction with regard to the main pulmonary artery, while the branch of the minor longitude bifurcation lodges the origin of the right pulmonary artery.

2. Fenestrated asymmetric intracardiac device, according to Claim 1 state this device is characterized by a first inferior section and a second superior section, which form a unique tubular body made, at least, of a series of threads forming a mesh.

3. Fenestrated asymmetric intracardiac device, according to Claim 1, this device is characterized by a first inferior section, which has a mesh span. This mesh span is independent of the second superior section, being this first section axially deployable and it can be set into the second section, defining a tubular body, whose longitude can vary selectively.

4. Fenestrated symmetric intracardiac device, according to what is stated in claims 1,2 and 3, this device is characterized by a first inferior section, which has a mesh made of more resistant filaments than the second section, determining a first inferior section of

less flexibility with respect to the second superior section.

5. Fenestrated asymmetric intracardiac device, according to what is stated in claims 1, 2, 3 and 4, this device is characterized by the inferior end of this first section, which has a mesh structure without polymeric cover, defining a tubular end, which is permeable by the blood flow that runs up through the inferior vena cava and the hepatic vena.

6. Fenestrated asymmetric intracardiac device, according to Claim 1, this device is characterized by a major longitudinal branch of the bifurcation, which is formed by a mesh made of threads, which are covered by an impermeable polymeric material. This branch forms with the second superior section a tubular wall, which is impermeable to blood flow, while the other branch of this bifurcation is not covered by the impermeable material, it forms a short permeable and when the blood flows.

7. Fenestrated asymmetric intracardiac device, according to what is stated in claims 1, 2, 3, 4, 5 and 6, this device is characterized by a mesh material which defines its sections. This mesh is made of linked metallic threads, forming a deformed mesh, which can acquire its original shape and dimensions when its deforming action is released. The impermeable polymeric material is the polytetrafluoroethylene (PTFE).